Abstract

An all-optical packet gating and routing system, comprising:

first optical divider having first input and a plurality of outputs for receiving optical packets at the first input and directing the packets to each of the plurality of outputs, the optical packets having encoded headers and payloads, and each of the plurality of outputs of the first divider includes a packet gate; the packet gate, comprising:

second optical divider having second input and first and second outputs for receiving the optical packets at the second input and directing the packets to each of the first and second outputs; the first output includes a decoding device for decoding one of the encoded headers of one of the optical packets and to produces a pulse in response to one of the encoded headers propagating in the first output and a copier for producing a plurality of images of the pulse, and an AND gate having third and fourth inputs and a third output; and the AND gate receives the plurality of images of the pulse at the third input and one of the packets at the fourth input to produce time coincidence between the plurality of images of the pulse and the pulses of the payload of one of the optical packets propagating in fourth input to produce at the third output a signal similar to one of the payloads.